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Instruction manual

Condensation dryer
AD 530 / AD 630 / AD 630F

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1 General advice

You have bought an air dryer made by AERIAL thus deciding for a proven quality product "Made in Germany". If nevertheless complications should occur, you will find some advice hereinafter how to eliminate such difficulties as quickly as possible.

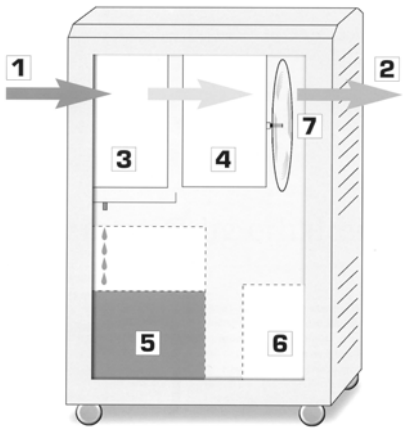
Attention!

- *Immediately after receipt, you should check your air dryer for transport damage! In the case of damage, you should inform the forwarding agent, parcel service, post office etc. accordingly upon receipt, and make a note of it on the forwarding documents!*
- *If a transport damage should be stated after unpacking the equipment, please contact immediately your respective seller.*
- *Before putting your air dryer into operation for the very first time, these instructions for operation should be studied very thoroughly. Thus, you can make sure that this appliance will operate perfectly for a long period of time saving yourselves unnecessary repairs and expenses.*
- *In the case of technical unclarity or faults disconnect your appliance and ensure that it is not connected again by taking the mains plug out of the socket.*
- ***Please, keep the device wrapping in order to be able to send the device safe for guarantee repair. In order to save place you open simply the adhesive tape with a knife and you fold the carton.***

2 Design of equipment and mode of functioning

The AD-air dryer is constructed exclusively for air drying in closed rooms. That dehumidifier can prevent the formation of sweating water, eliminate too high air humidity and hold a specific air humidity unchangeable. The time which the dryer requires in order to achieve a specific humidity depends essentially on the environmental conditions. The attainable humidity value is equally dependent on the environmental conditions.

The AD-dehumidifier works according to the condensation principle with heat recovery. The fan (partial positions see detail drawing) suck the moist air through a cool register (evaporator). The air becomes so far chilled under the point of condensation here, that the steam of air condense as water and flows into the water-collecting tank. The chilled and dried air is warmed up at the condenser again. Through the heat pump effect, the outlet air is some degrees warmer than the sucked room air. Vigour profit can conducted up to 3-fold of the electrical power consumption. The absolute moisture of air is lowered continuously by the continuous circulation of the room air through the device. The surplus moisture is removed takingly and efficiently.



1 - wet room air
2 - dry air
3 - evaporator (cooling)
4 - condenser (warm up)
5 - condensate (in tank)
6 - compressor
7 - fan

3 Safety

The condensation dryers AD 530, AD 630 and AD 630F are furnished with protective devices. The devices were subjected to a safety examination. Dangers threaten in the case of operating error or abuse

- for the user.
- for the machine and other real values.
- for the efficient work of the machine.

All persons who have to do with the list, initiation, service and maintenance of the devices must be qualified correspondingly and consider this operating manual precisely.

Using as directed
The condensation dryers are intended for the drying of air with atmospheric pressure.

Risk by accessory
Hoses for condensate removal and air filters must be fit expertly and must not take the protective devices of the condensation dryers out of operation. The control elements must always remain freely amenable.

Authorized users
The service of the condensation dryers AD 530, AD 630 and AD 630F may only be carried out by persons, that were instructed from the operator . The user is responsible in the field of action third parties compared to.
Responsibilities for different activities on the device must of course be determined and kept. Unclear competences are a safety hazard.
The operator must make the operating instruction amenable for the user and make sure that the user did understand the manual.

4 Installation and transport

The AD-dehumidifier is planned for the mobile effort and wall mounting (only AD 530) on a wall bracket (optionally available). During the setting up and transportation of the dehumidifier, the following items are to be considered:

- That dehumidifier must be installed so that the air can circulate without obstruction through him. The air filter and also the lamellae of the front wall must not be covered. The open space before the lamellae and the air filter must at least conduct 1 meter.
- Before every local alternation of the device, switch off the device at the on/off-switch, pull the power plug from the socket and empty the water tank!
- The air dryer must be moved only using the provided roll resp. handle systems!
- The air dryer must be installed on a plane base only, as otherwise it must be secured against rolling off!
- That dehumidifier can be transported standing or lying! The standing transportation is to be preferred if possible.
- The appliance must be used exclusively for air drying.
- When using a bracket for wall mounting, this must be levelled by means of a water balance!

Attention!
Do never pull or move the device at the power cable.

5 Electrical connection

Before connecting the air dryer, the following items must be checked:

- ✓ Does the mains voltage coincide with the voltage of the appliance?
- ✓ Adequate fusing of socket and supply system?
- ✓ Has the required residual-current-operated circuitbreaker (r.c.c.b) been installed in case of swimming baths?
- ✓ If a cable drum is used: has it been unwound completely?
- ✓ Is the appliance connector suitable for the building socket?
- ✓ Is the socket provided with a perfect grounding?

> ***Attention!***
> *Before putting the air dryer into operation, the technical data of the appliance should be compared to the conditions prevailing in the room of installation!*

6 Operation

6.1 Putting into operation

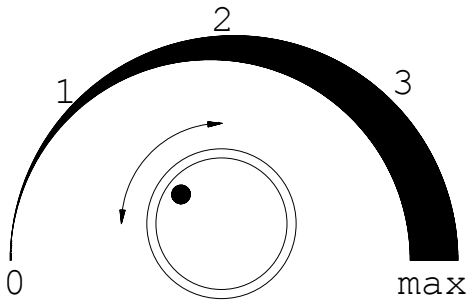
> ***Attention!***
> *Before putting the air dryer into operation, the instruction manual should be studied carefully. Thus, damages by a false or inappropriate operation as well as by inadequate environmental conditions can be avoided.*

For using the air dryer, please proceed as follows:

- ✓ After having been transported, the air dryer should rest for abt. 15 min. During this period of time, the oil distributed inside the refrigerating system and frothed during transport will return into the compressor. We recommend this procedure since it extends the service life of the compressor.
- ✓ Put the plug into the socket.
- ✓ Check whether the bucket is inside the equipment resp. whether the drain hose has been fastened and laid appropriately.
- ✓ Switch on the appliance by actuating the ON-OFF-switch. The latter is located at the side wall on the right and must be illuminated after actuation.
- ✓ Set the required humidity value at the hygrostat (please refer in this respect to 'Hygrostat Control').
- ✓ If the existing humidity is higher than the set value, the air dryer will start to operate.
- ✓ If the existing humidity is lower than the set value, the air dryer will not start to operate.

6.2 Hygrostat control

The air dryers of the AD-series dispose of a hygrostat for setting the required humidity value. This hygrostat is located in the hygrostat box inside the bucket compartment. It makes that the air dryer cuts in as soon as the ambient humidity exceeds the preset value. If the humidity value falls below the set value, the hygrostat will switch off the appliance.
The following operating modes can be set by means of the hygrostat:



- The mark on the rotary button points to "0". The appliance is switched off. No air drying.
- The mark on the rotary button points to "1". The appliance is in the air-drying mode. An air humidity of abt. 70 % can be obtained.
- The mark on the rotary button points to "2". The appliance is in the air-drying mode. An air humidity of abt. 50 % can be obtained.
- The mark on the rotary button points to "3". The appliance is in the air-drying mode. An air humidity of less than 50 % can be obtained.
- The mark on the rotary button points to "max.". The appliance is in the continuous operating mode. A relative humidity of up to 40 % can be obtained.

Attention!
The marks at the rebound curve and the humidity values mentioned above are to be seen as reference values only. The hygrostat of the air dryer and a hygrometer located inside the room to be dried most probably will not indicate the same values. It is recommended to change the setting at the air dryer until the desired room humidity has been reached.

6.3 Condensate outlet

The air dryers of the AD-series are serially equipped with water collecting tanks and with fittings for 12 mm hoses. If the water collecting tank is used, the appliance will switch off automatically when the tank is full, and the red lamp at the right side of the enclosure will light up.

Attention!
The appliance should be disconnected before removing the water tank, so that no condensate can accumulate on the floor of the room to be dried.

If a hose is used for the draining the condensate, it should be proceeded as follows:
- ✓ Remove the bucket from the unit.
- ✓ Attach cautiously the hose to the drain to the bottom of the defrosting tub. Apply no power.
- ✓ If possible - attach cautiously the hose with a hose clamb. Apply no power.
- ✓ Lead the hose optionally to the back or through the punctures in seesaw and ground down from the device..

Attention!
- *The end of the hose must be situated lower than the beginning of the hose (runoff socket)!*
- *The hose must never be bent!*
- *No objects must be placed onto the hose!*

6.4 Automatic defrosting

During air drying, ice may form at the evaporator. The volume of ice depends on the ambient conditions prevailing in the room to be dried. The air dryer is equipped with an automatic hot-gas defroster. It ensures that, depending on the extent of ice formation, the appliance will be defrosted automatically according to the following principle:

- A temperature sensor measures the condition existing in a critical area of the evaporator.
- It transmits the signal for defrosting to the DryLogic-electronic. The DryLogic finds out if defrosting is necessary, and it will start defrost-mode on its own.
- During defrosting the compressor works and the fan does not work.
  When the ice is defrosted, the dehumidifier will start again with dehumidifying

7 Operating conditions

AD-condensation dryer are suitable for the effort on construction sites, in residential buildings, in swimming halls, in garages and storerooms. AD-condensation dryer work problem-free at the temperature range of +3 to +32°C and in the case of relative humidity from 40% to 95% r.h. .

Attention!

The appliance must not be used under the following conditions:

- *in rooms of potentially explosive atmosphere*
- *in rooms of aggressive atmospheres, for example ammonia and wood acid*
- *In rooms with water which shows a pH-value outside of 7,0 to 7,4.* ***Remark****: In the case of lower pH-value, corrosion occurs at all metals and damages occurs at mortar containing materials. In the case of higher pH-value, it comes to irritation of skin and eye mucous membrane and extreme lime deposits.*
- *in rooms featuring a high concentration of solvents*
- *in rooms of an extremely high ratio of dust*

In the case of doubtful operating conditions it is recommended to contact the Technical Department of Messrs. AERIAL or a specialized dealer.

Using an AD-air dryer under inadequate operating conditions will entail that the warranty becomes null and void.

8 Technical data

Range of application	+3 to +32°C, 40 to 95%r.h.
Supply voltage, frequency	230V, 50Hz
Safety class 1 acc. to VDE 0106 T1	
Degree of protection IP23 acc. to DIN 40050	
air flow	660 m³/h
Noise level	54dB(A)
Dimensions (width/height/depth) – AD 530	420 mm / 710 mm / 500 mm
Dimensions (width/height/depth) – AD 630	500 mm / 670 mm / 440 mm
Dimensions (width/height/depth) – AD 630F	540 mm / 795 mm / 510 mm
weight – AD 530	39 kg
weight – AD 630	38 kg
weight – AD 630F	40 kg
refrigerant	430 g R134a (CFC-free)
Warranty	24 months from date of purchase
Fusing	6 A
Protection in swimming baths	r.c.c.b.

Performance data acc. to DIN EN 810 E

Temperature/rel. humidity	Drying capacity **l/day**	Power consumption **Watt**	Drying coefficient **l/kW**	**kW/l**
30°C / 80%r.F.	32,4	680	1,99	0,50
27°C / 60%r.F.	20,1	580	1,44	0,69
20°C / 60%r.F.	13,1	500	1,09	0,91
10°C / 70%r.F.	8	400	0,82	1,2

Among other things, many different components which are installed in the condensation dryer decide on the capacity of the device. Since these components can never be completely identical, in accordance to DIN EN 810 the capacity may deviate up to 5% of specified capacity.

9 Trouble shooting

trouble	Pos.	Cause	Relief
The dehumidifier shows a bad and/or no drying capacity.	1	The humidity in that room is lower than 40% r.h. .	The effort of the dryer is uneconomical in the case of these conditions. It is recommended to disconnect the dryer. **Tipp**: Put the built-in hygrostat on an attainable value (e.g. approx. 50%r.F.), with it the dryer punctually may switch off.
	2	The air filter is soiled	The dryer does not receive air sufficiently. Clean the filter and/or install a new one. A soiled air filter can in the long run lead to disadvantages at the dryer. **Tipp**: Control the filter regularly.
	3	The temperature in that room is lower than +3°C.	Operation of the dryer is uneconomical in the case of these conditions. Switch off the device.
	4	A mistake in the cooling circuit of the dryer is possible.	The defect must be eliminated by an expert.

The automatic circuit breaker of the building disturbs the voltage supply to the device.	5	The safeguard of the building is too weak.	The building safeguard must be checked and/or transposed.
	6	A malfunction in the electrical circuit of the dryer is available.	The voltage supply of the dryer must be disturbed. (Pull power plug!) The defect must be eliminated by an expert.
The fan of the dryer is out of operation	7	The dryer is in the defrost mode	The fan starts again after some minutes. If it does not start again, the defect must be eliminated by an expert.
It occurs an unusual, strong noise formation	8	The filter holder is not correctly inserted	The filter holder must be inserted correctly
	9	One or several case screws are not tightened correctly.	The slack case screws must be tightened correctly.
The complete dryer is out of operation	10	The dryer is switched off	Switch on the unit at on/off-switch
	11	The humidity adjusted at the hygrostat is achieved.	The dryer turns on automatically after exceeding the adjusted humidity again.
	12	The water tank is full	The water tank must be emptied and put into the device back.
	13	There is defective at the device	The defect must be eliminated by an expert.
That dehumidifier is frozen at the evaporator very strong. You can see an ice block.	14	The room temperature is or was lower than +3°C for a time.	You might put the dryer into a room with at least +10°C and wait until the entire has thawed ice. Turn on after this the device again and it might let about 3 hours run. If a new glacial block should form itself, contact your supplier. Otherwise make sure that the device is only used in rooms, in which +3°C being at least. Ice build-up is also possible after too immediate switch-on after storage in colder conditions.
	15	There is a defective at the automatic defrost system	The defect must be eliminated by an expert.

The dryer does not achieve the humidity adjusted at the hygrostat and/or does not switch itself off via the hygrostat.	16	The hygrostat is adjusted onto a value below 45% r.h..	A condensation dryer can achieve - depending on environmental conditions - at a minimum a value from 40 to 45% r.h. . Put the built-in hygrostat on an attainable value (e.g. approx. 50%r.h.), with it that dehumidifier punctual may switch off.
	17	The unit is to small for your application	The air changing rates, persons in that room and open water surfaces decide on the humidity load. Ask your authorized dealer to calculate if the unit has enough capacity for your application.
	18	There is a lot of moist in the walls and in the floor (Building materials) .	In this case, the dryer needs some time to remove all that water and to achieve an acceptable humidity in that room.
	19	There is a defective at the hygrostat	Check the hygrostat. Switches the unit off when you turn the hygrostat to position „0“?
	20	A mistake in the cooling circuit of the dryer is possible.	Check whether water gathers in the water tank. If this is not the case although the compressor ran permanently, you should get in touch with your supplier.

Attention!

The appliance must be repaired by a trained and expert personnel only. In the case of interventions by unauthorized people, any and all warranty claims shall become null and void! If you have any questions regarding defects and malfunctions of AERIAL-air dryers we recommend to get in touch with your supplier.

10 Repair and maintenance

> ***Attention!***
> *When performing any repair or maintenance, the general safety rules and provisions must be adhered to!*

In order to guarantee a troublefree function of the dryer the device should be cleaned regularly. The following procedure is instead recommended:

- ✓ Switch OFF the air dryer
- ✓ Disconnect mains cable
- ✓ Remove filter holder
- ✓ Remove filter for cleaning or disposal
- ✓ Dismount cover and front panel
- ✓ Blow out device cautiously with compressed air. (wear protective goggles!) In this case, it might ensure that all components are cleaned. (Compressor, evaporator, condenser, ect.)
- ✓ Check hose connector and connected hose
- ✓ Clean case with moist cloth. Do not use aggressive Detergent
- ✓ Mount cover and front panel
- ✓ Insert new or cleaned filter
- ✓ Insert filter holder
- ✓ Put main plug into the sucket
- ✓ Switch on dehumidifier.

This cleaning is without fail regularly required!
During construction site effort, after every effort!

No other maintenance work is required for the air dryer.

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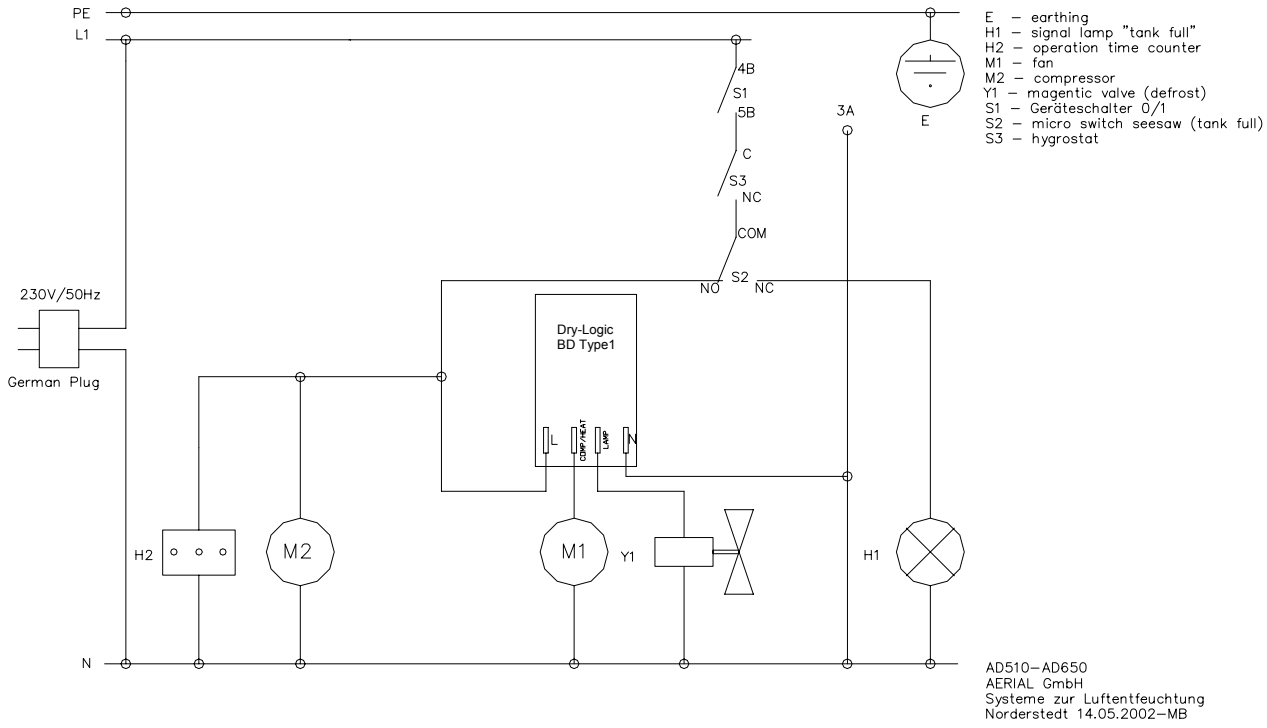
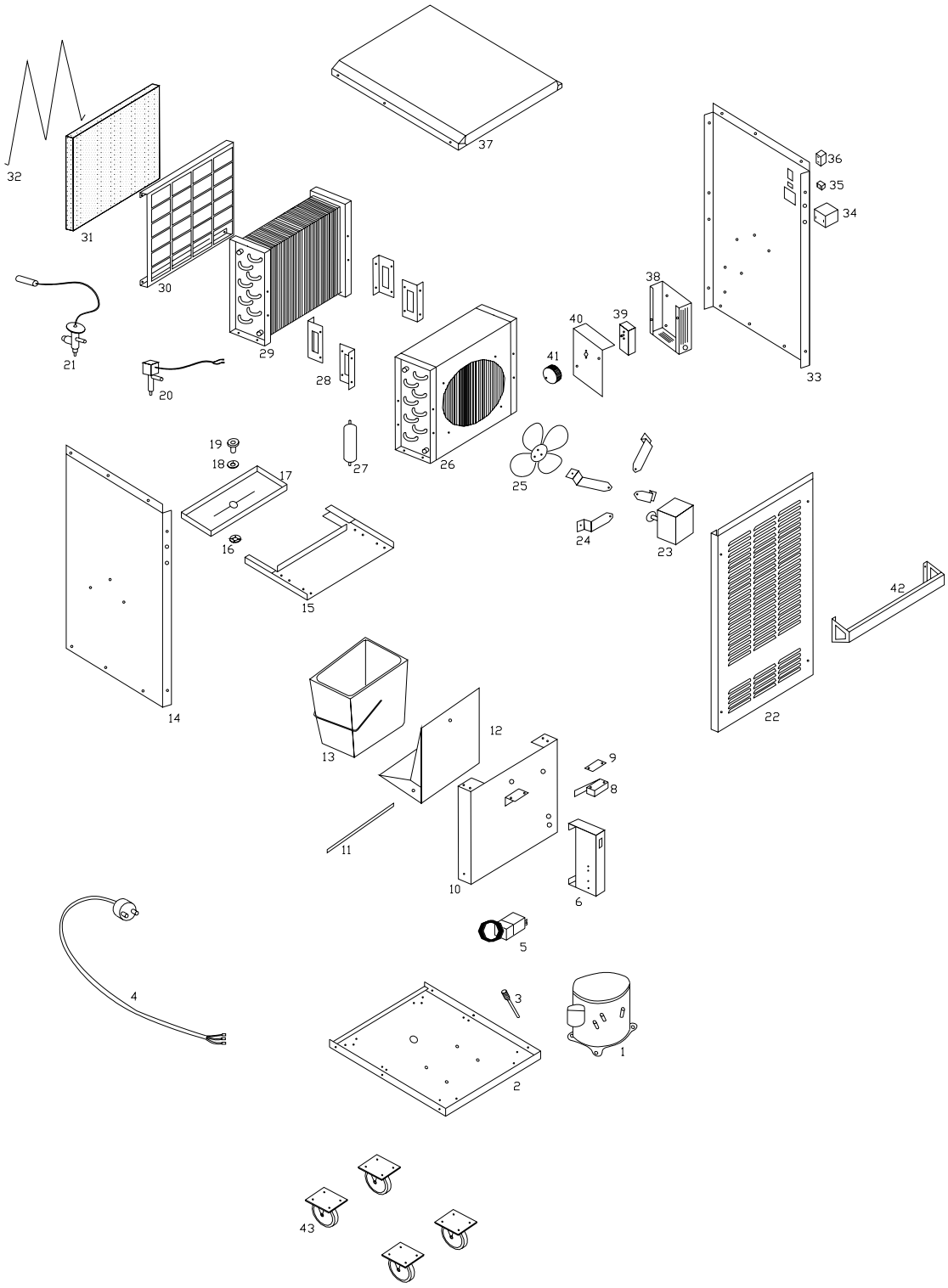
11 Circuit diagram



12 Denotation of the most important components AD 530

Pos.	Denotation	Pos.	Denotation
1	compressor	26	condenser
4	Main cable (approx. 4,5 mtr.)	27	Filter dryer
5	DryLogic with sensor	29	evaporator
8	Micro switch	30	Filter cassette
11	axle	31	filter
12	seesaw	32	Filter holder
13	bucket	33	Side cover right
14	Side cover left	34	Operation time counter
17	Condensate sump	35	Signal lamp
18	seal	36	On-/Off-switch
19	drain	37	Top cover
20	Magnetic valve	39	Hygrostat
21	Capillary tube	41	Knob (hygrostat)
22	Front cover	42	grip
23	Fan motor	43	inflexible wheel (2 pcs.)
24	Fan holder (4 pcs.)	44	steerable wheel (2 pcs.)
25	Fan wing		

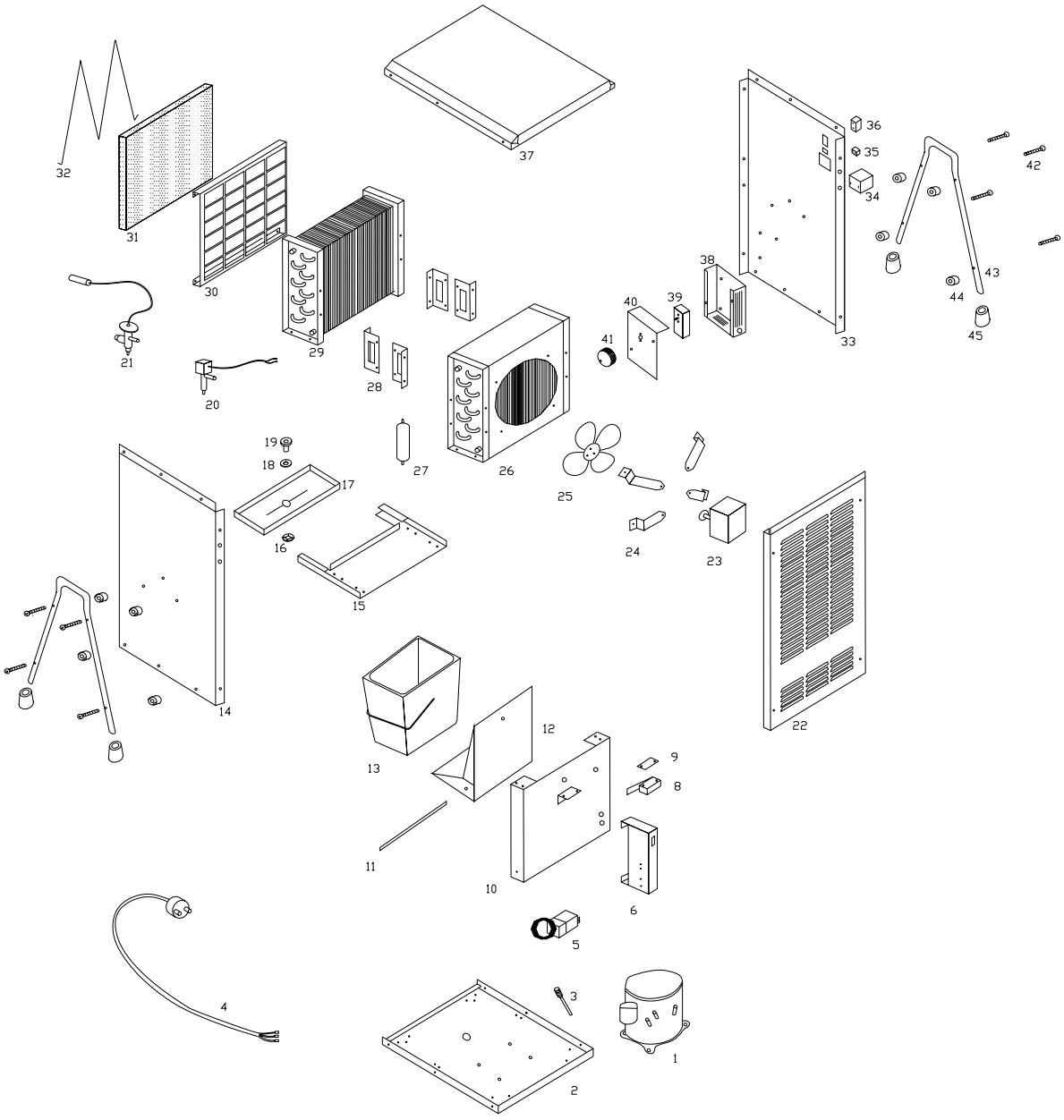
13 Detail drawing AD 530



14 Denotation of the most important components AD 630

Pos.	Denotation	Pos.	Denotation
1	compressor	26	condenser
4	Main cable (approx. 4,5 mtr.)	27	Filter dryer
5	DryLogic with sensor	29	evaporator
8	Micro switch	30	Filter cassette
11	axle	31	filter
12	seesaw	32	Filter holder
13	bucket	33	Side cover right
14	Side cover left	34	Operation time counter
17	Condensate sump	35	Signal lamp
18	seal	36	On-/Off-switch
19	drain	37	Top cover
20	Magnetic valve	39	Hygrostat
21	Capillary tube	41	Knob (hygrostat)
22	Front cover	43	grip (2 pcs)
23	Fan motor	44	Distance holder (8 pcs.)
24	Fan holder (4 pcs.)	44	Rubber bumper (4 pcs.)
25	Fan wing		

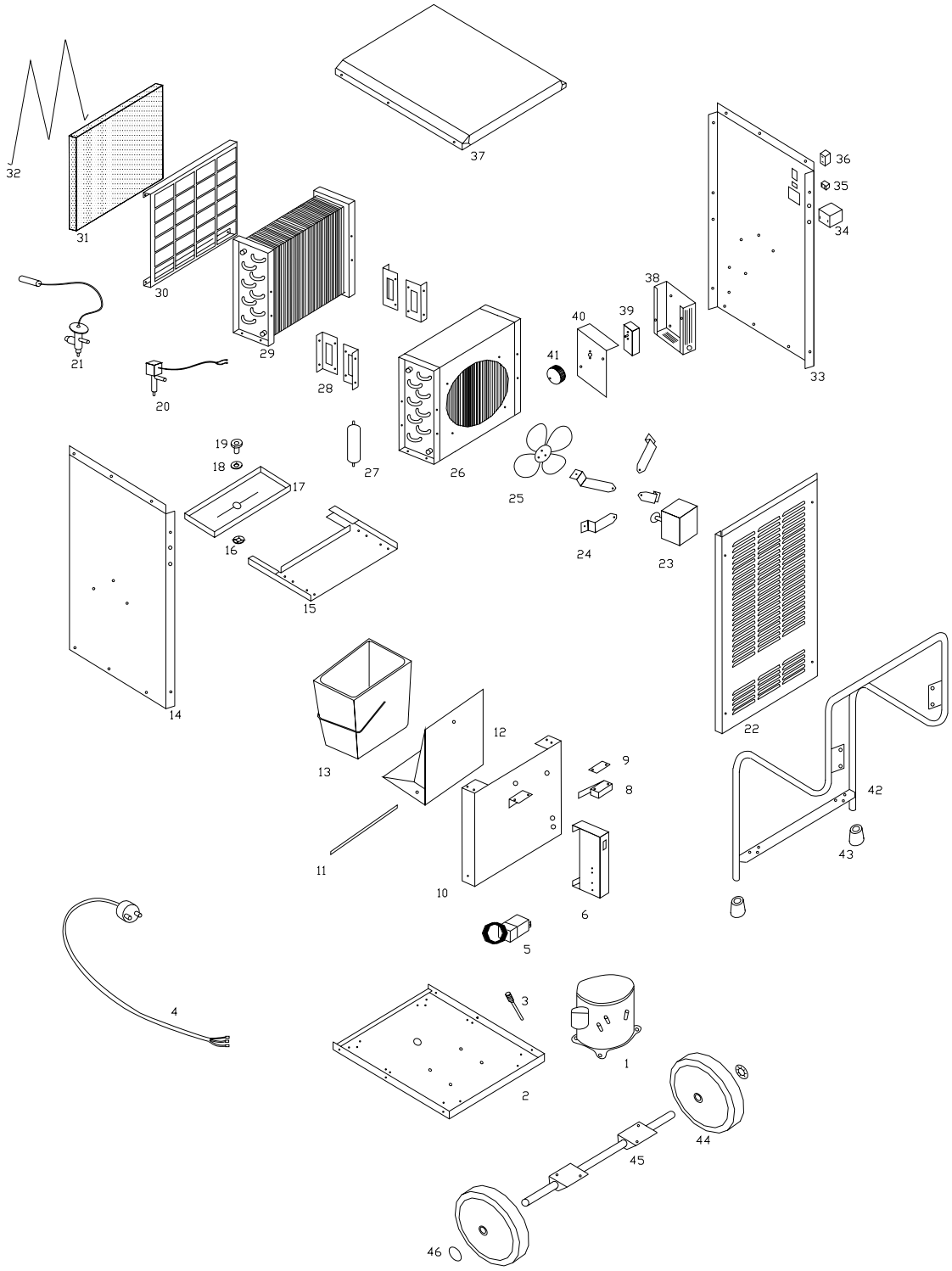
15 Detail drawing AD 630



16 Denotation of the most important components AD 630F

Pos.	Denotation	Pos.	Denotation
1	compressor	26	condenser
4	Main cable (approx. 4,5 mtr.)	27	Filter dryer
5	DryLogic with sensor	29	evaporator
8	Micro switch	30	Filter cassette
11	axle	31	filter
12	seesaw	32	Filter holder
13	bucket	33	Side cover right
14	Side cover left	34	Operation time counter
17	Condensate sump	35	Signal lamp
18	seal	36	On-/Off-switch
19	drain	37	Top cover
20	Magnetic valve	39	Hygrostat
21	Capillary tube	41	Knob (hygrostat)
22	Front cover	42	Transport frame
23	Fan motor	43	Rubber bumper (2 pcs.)
24	Fan holder (4 pcs.)	44	Full rubber wheel (2 pcs.)
25	Fan wing	45	Axis for wheels

17 Detail drawing AD 630F



18 Manufacturer declaration

(EG-directive 89/392/EWG)
(EG-directive 89/336/EWG)
(EG-directive 73/ 23/EWG)

manufacturer: AERIAL GmbH - Systeme zur Luftbehandlung
Oststraße 128, D-22844 Norderstedt

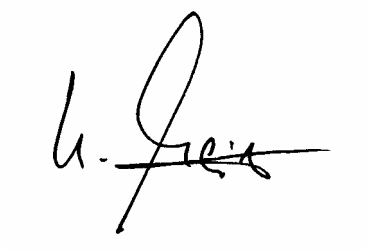
Product description: Luftentfeuchter AD 530 / AD 630 / AD 630F

Rated capacity: 30 l/24h

The product described above is an ambient air dryer ready for connection.

Related standards:	EN 292	Safety of Machinery
	EN 50081-1	Electromagnetic Compatibility (EMC) Basic Specification "Emitted Interference"
	EN 50082-1	Electromagnetic Compatibility (EMC) Basic Specification "Emitted Interference"
	EN 60335-2-40	Safety of electric appliances for domestic use and similar purposes

Norderstedt, 01.07.2003 signature / stamp



19 Purchase data (please fill out)

Date of purchase: _____

Serial-no.: _____
(you find it on the type plate at the rear side of the unit where the bucket is in)

Dealer: